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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,157	10/09/2003	Kenji Hosaka	50195-393	6462

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McDERMOTT, WILL & EMERY  
600 13th Street, N.W.  
Washington, DC 20005-3096

EXAMINER
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ONEILL, KARIE AMBER

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/681,157

Applicant(s)

HOSAKA ET AL.

Examiner

Karie O'Neill

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 5-8 is/are rejected.
- 7) ☒ Claim(s) 2-4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10-9-03, 07-14-05</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reynier et al (US 3960599) in view of Nishijima et al. (US 2004/0043288 A1).

Reynier et al. discloses in Figure 2, an electrochemical generator (G'), comprising: a positive electrode (1) provided on one surface of a collector (9), and a negative electrode (2) provided on the surface of a collector (8); a sealing layer (25) which is provided between the collectors and surrounds a periphery of a single cell including the positive electrode, the negative electrode and the electrolyte (column 3 lines 2-3). He discloses the generator (G') having a seal (25) positioned internally of the collectors (8,9) with a space (14') in which the frame (10') material is molded around the stack components. The frame is made of materials such as polyamide, polyethylene or

polypropylene and the seal is made of a non-conductive elastomeric material. He also discloses in Figure 4, a battery consisting of a stack of several generators.

Reynier et al. does not disclose a gel electrolyte sandwiched between the positive electrode and the negative electrode, wherein the positive electrode includes composite oxide of lithium and transition metal, and the negative electrode includes carbon or composite oxide of lithium and transition metal, and a vehicle comprising the assembled battery wherein the battery is formed by heating and pressurizing a portion of the sealing layers from sides of the collectors in a state where a plurality of the electrodes, gel electrolyte and the sealing layers are stacked on each other.

Nishijima et al. discloses in Figures 1 and 2, a gel electrolyte (7) sandwiched between positive (6) and negative (8) electrodes wherein the positive electrode is made of a lithium containing oxide (paragraph 0036) and the negative electrode is made of a lithium metal, a lithium metal alloy, a carbon material and a metal oxide that can absorb and disrobe lithium and others (paragraph 0040). He also discloses the battery assembly being prepared by sandwiching it between the laminates (seal), the laminates being thermo-welded to each other along the peripheral portions thereof under reduced pressure (paragraph 0064) and the battery assembly for use in a portable device (paragraph 0072).

Reynier et al. and Nishijima et al. are analogous art because they are from the same field of endeavor, batteries. It would have been obvious to one of ordinary skill in the art at the time of the invention to sandwich the gel electrolyte between the lithium oxide positive electrode and carbon based negative electrodes of the Nishijima et al.

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reference for the purpose of creating the battery of Reynier et al. with less electrolyte leakage potential and with good ionic conductivity.

### ***Allowable Subject Matter***

Claims 2-4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The closest prior art (Raynier et al. US 3,960,599) does not teach or fairly suggest a bipolar battery wherein the sealing layer is made of first resin provided to be positioned on sides of the collectors and non-conductive second resin which is sandwiched by the first resin and has a higher melting point than that of the first resin, and the collectors and the sealing layer are thermally welded at temperature between melting points of the first resin and the second resin. It also does not teach the melting point of the first resin becoming higher as it is positioned further outside of the electrode stacked body and wherein the first resin and the second resin are at least two resins, which have a higher melting point and a lower melting point than the temperature of the thermal welding, respectively, and are selected from a group containing polypropylene, polyethylene, polyurethane, thermoplastic olefin rubber, polyamide based resin, polytetrafluoroethylene, polyvinylidene fluoride, polystyrene and silicone rubber.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karie O'Neill whose telephone number is (571) 272-8614. The examiner can normally be reached on Monday through Friday from 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KAO

  
**JONATHAN CREPEAU**  
**PRIMARY EXAMINER**